



#### Cable Sags

#### AT&T 627-210-018

Significant changes concerning vertical clearances were made in the 1990 edition of the National Electrical Safety Code (NESC). Primarily, rather than specify the minimum vertical clearance under nominal operating conditions, that is, no load conditions at 60°F (15.5°C), NESC Rule 232 specifies that vertical clearances apply during maximum sag conditions. For telephone cable, maximum sag may occur at either the high-temperature condition of 120°F (48.9°C) or at 32°F (0°C) with an ice load. The condition that results in the largest cable sag must be used with the minimum clearance requirements to determine the required pole attachment height.

The expected worse-case sag for copper cable supported by 6M, 6.6M, 10M, 16M, and 25M strand in the light, medium, and heavy storm-load region is shown in the following graphs. The sag is based on the recommended stringing-tension shown in the table on page 10-39.

To use the graphs, first select the one that applies to the particular strand and storm-load region of interest. Next, select the curve on the graph that corresponds to the proper cable weight. Cable weights are shown in AT&T 626-101-005 and 626-xxx-xxx and in Section 14, "CABLE AND WIRE" of this document. Locate the span length of interest on the horizontal axis, and draw a vertical line from that point to the appropriate cable-weight curve. From that point, draw a horizontal line that intersects with the vertical axis. This point on the vertical axis corresponds to the worse-case sag condition.

This worse-case sag must be added to the minimum required vertical clearance (see Section 11, "CLEARANCES FOR AERIAL PLANT") to determine the minimum pole-attachment height for that particular combination of cable weight, span length, strand, and storm-load region.

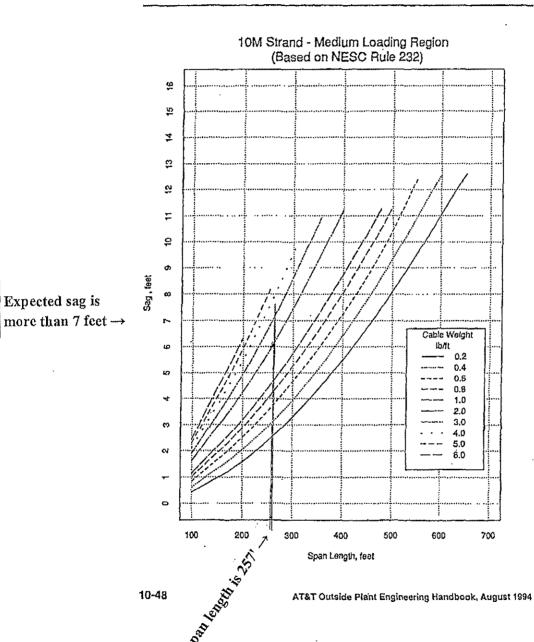
## Alpeth Sheath (Air Core)

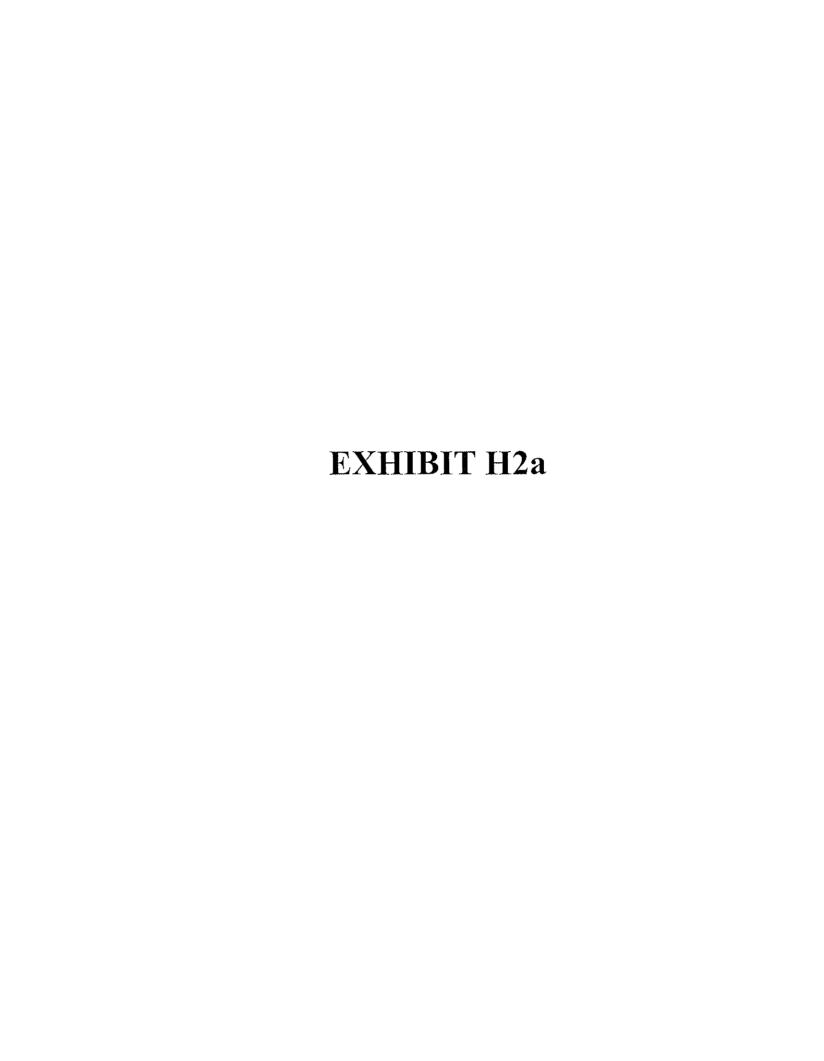
These cables are primarily designed for aerial use. They should not be used for buried installation. If the environment where they are being installed is subject to sheath damage due to wildlife, etc., the Alpeth-UM design shown on Page 14-16 should be used.

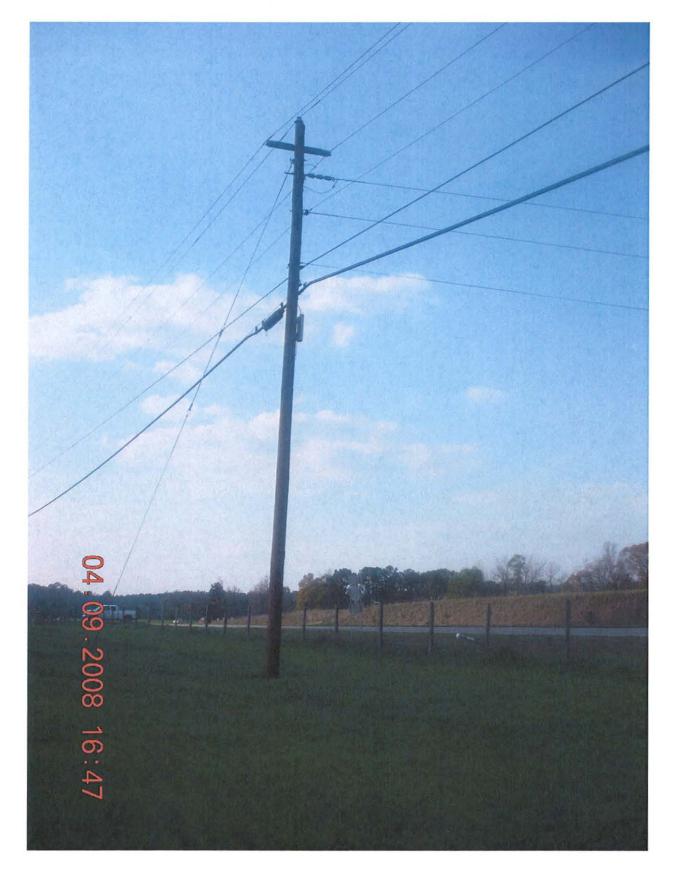
		A	LPETH	SHEATH		,		
Cable Code	No. Of Pairs	AWG Avallability		Standard Length #420 Reet Ft.(m)	Nominal Outside Dia. In.(mm)	Nominal \ Lbs./Ft.	<u>_</u>	Comcode
BHBA	0025	19	S	9720(2963)	0.82(21)	0.33	491	100022151
	0050	19	NS	4860(1482)	1.09(28)	0.59	878	100022185
	0100	19	NS	3240(988)	1.48(38)	1.12	1667	100022243
	0200	19	NS	2400(732)	1.97(50)	2.18	3244	100022300
	0300	19	NS	1590(485)	2.36(60)	3.21	4777	100022334
BHAA	0025	22	S	9810(2991)	0.62(16)	0.19	283	100021146
	0050	22	S	9810(2991)	0.80(20)	0.33	491	100021179
	0100	22	S	4900(1494)	1.09(28)	0.60	893	100021237
	0200	22	S	3920(1195)	1.45(37)	1.13	1682	100021294
	0300	22	S	3270(997)	1.68(43)	1.67	2485	100021328
	0400	22	\$	2170(662)	1,93(49)	2.18	3244	100021351
	0600	22	S	1360(415)	2.28(58)	3.21	4777	100021385
	0900	22	Ş	1190(363)	2.82(72)	4.75	7069	103711339
BKMA	025	24	S	11340(3457)	0.58(15)	0.13	193	100023043
	0050	24	S	10200(3109)	0.70(18)	0.22	327	100023076
	0100	24	S	8500(2591)	0.88(22)	0.39	580	100023134
	0200	24	S	5430(1656)	1.18(30)	0.72	1071	100023191
	0300	24	\$	4240(1293)	1,38(35)	1.05	1563	100023225
	0400	24	S	3770(1150)	1.53(39)	1,39	2069	100023258
	0600	24	S	2390(729)	1.87(47)	2.03	3021	100023282
	0900	24	\$	1670(510)	2.31(59)	2.97	4420	100023316
	1200	24	s	1360(415)	2.53(64)	4.00	5953	103711313
	1500	24	8	1020(311)	2.86(73)	4.95	7366	103711305
	1800	24	S	910(278)	3.04(77)	5.92	8810	103711297

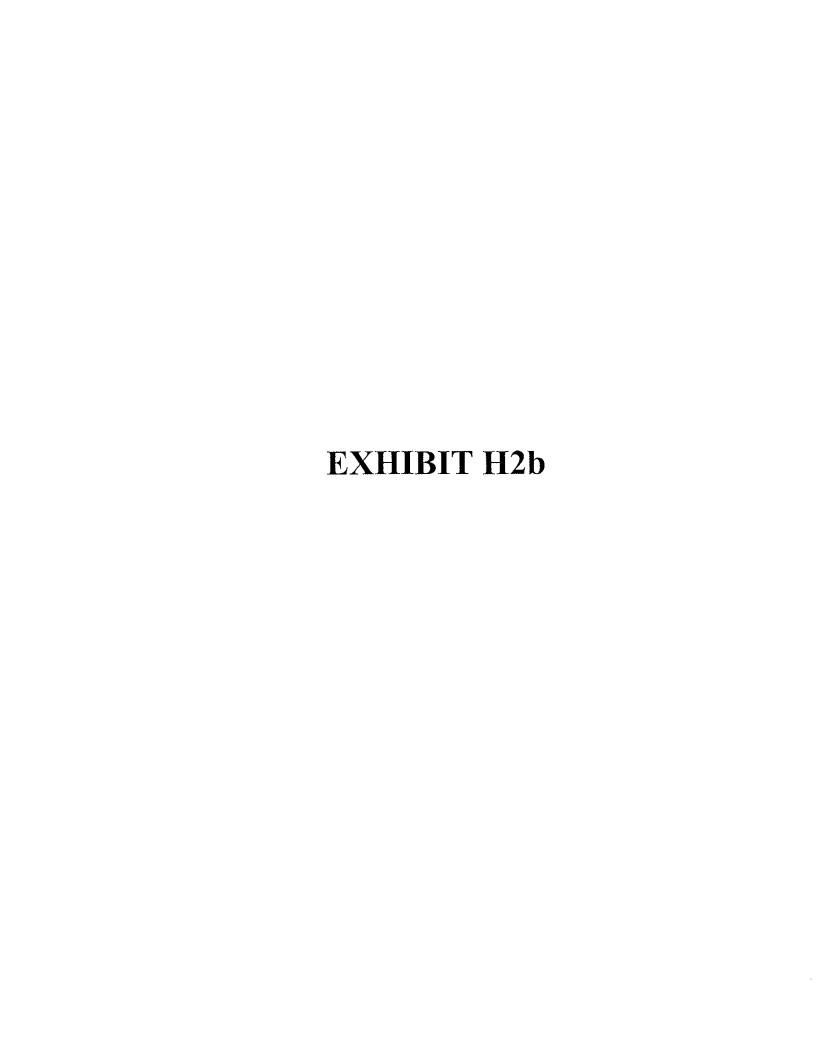
AT&T cable type in the photograph ←3.21 lbs. per foot

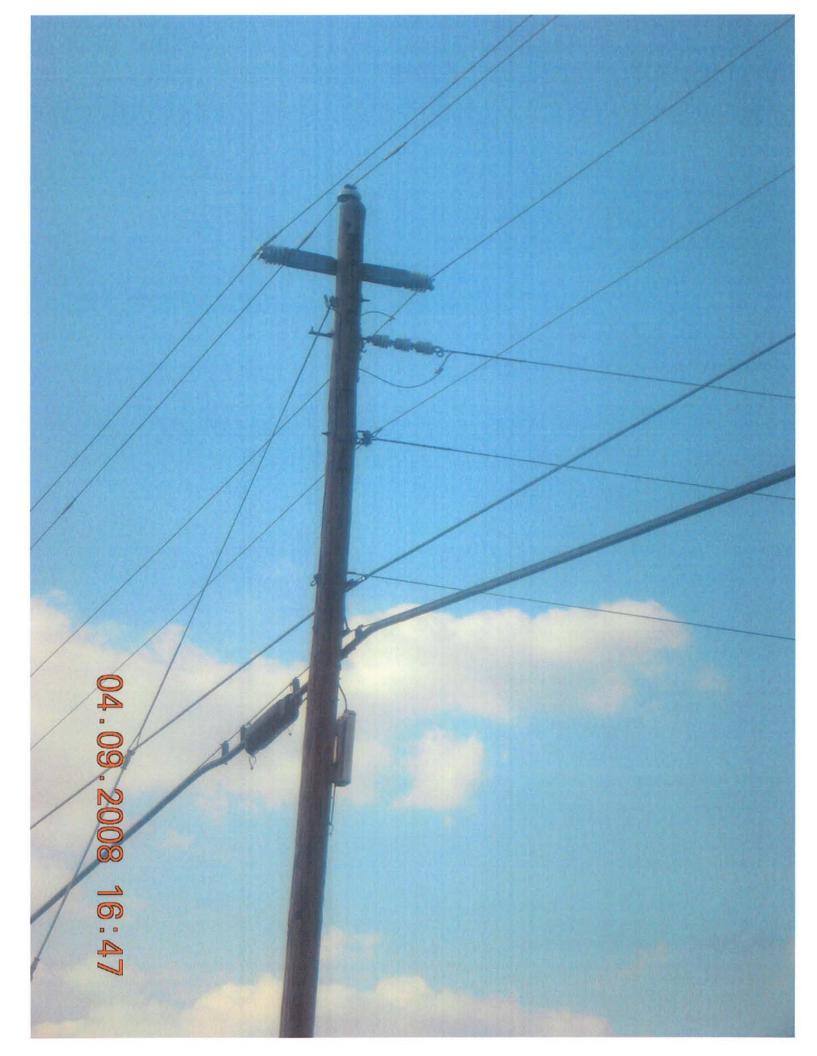
Expected sag is

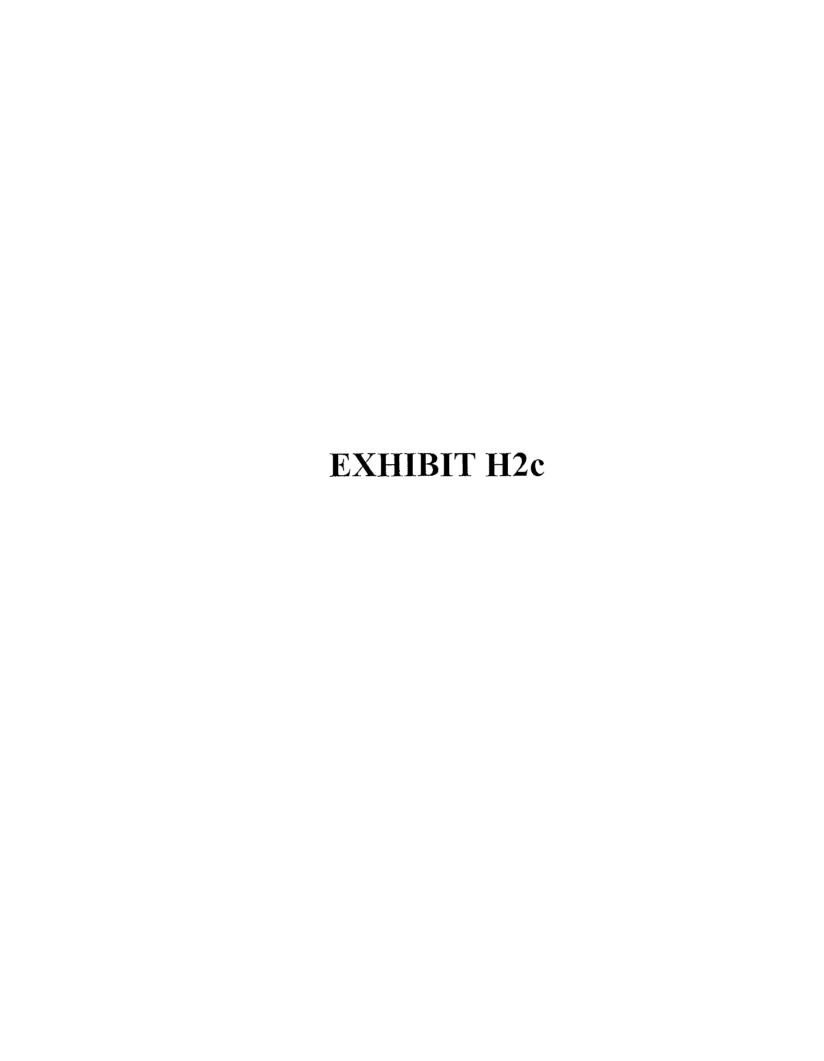


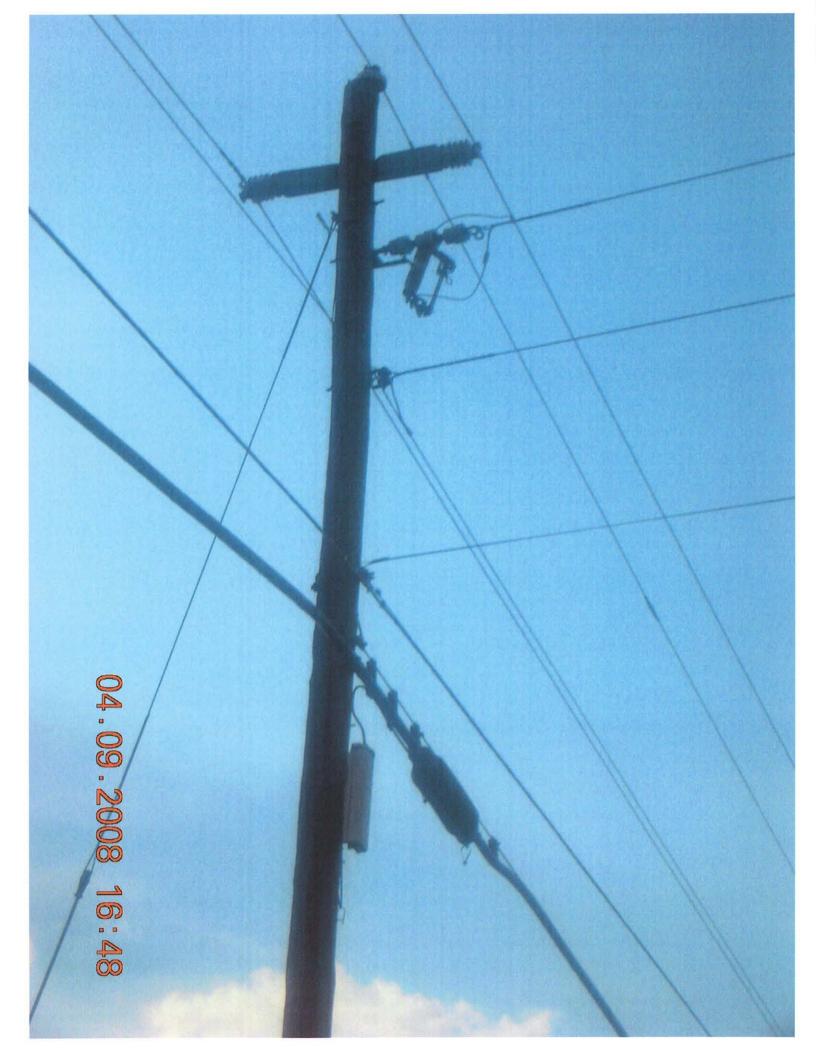


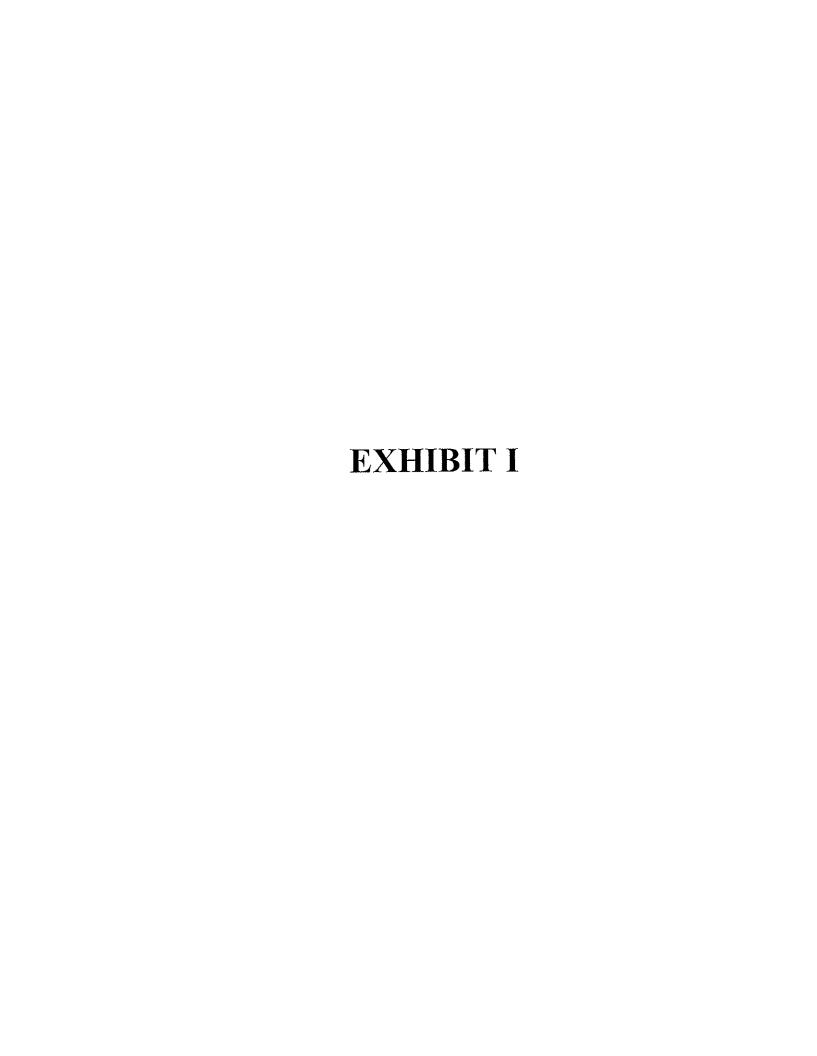












#### Exhibit I A T and T ARMIS Report 43-08 Consolidated

FCC Paper Report 43-08 ARMIS Operating Data Report

COMPANY: AT&T STUDY AREA N/A

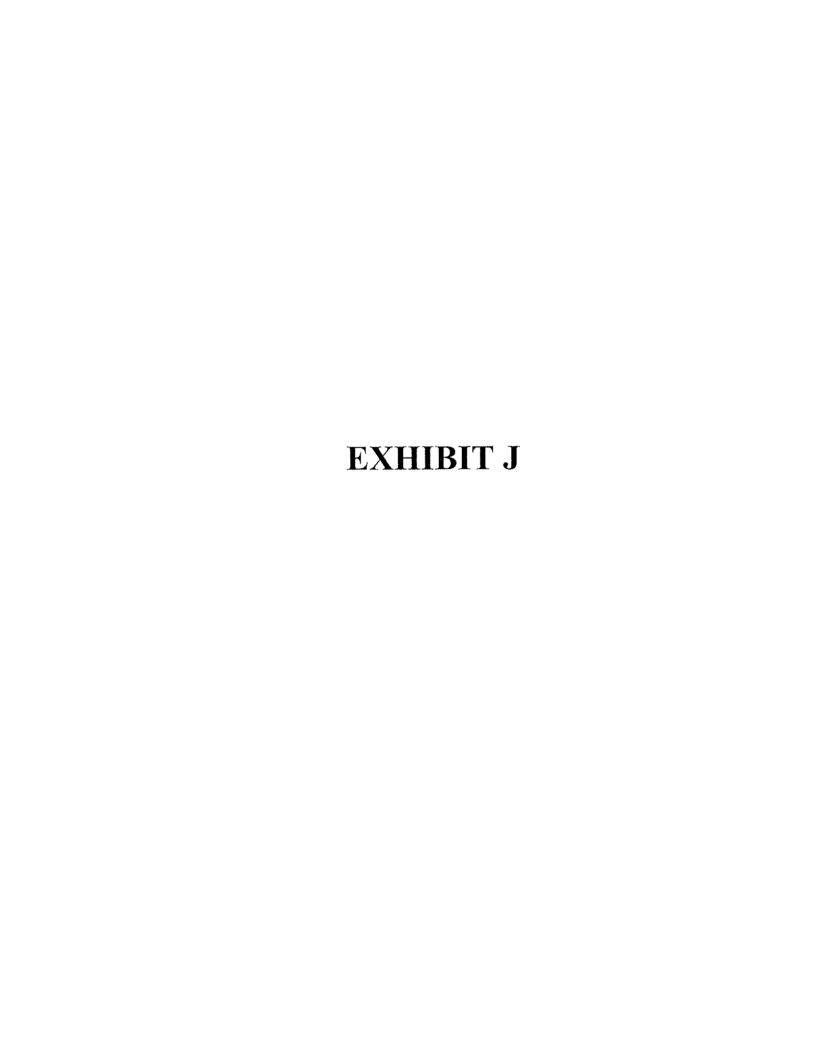
PERIOD: From: Jan 2007 To: Dec 2007

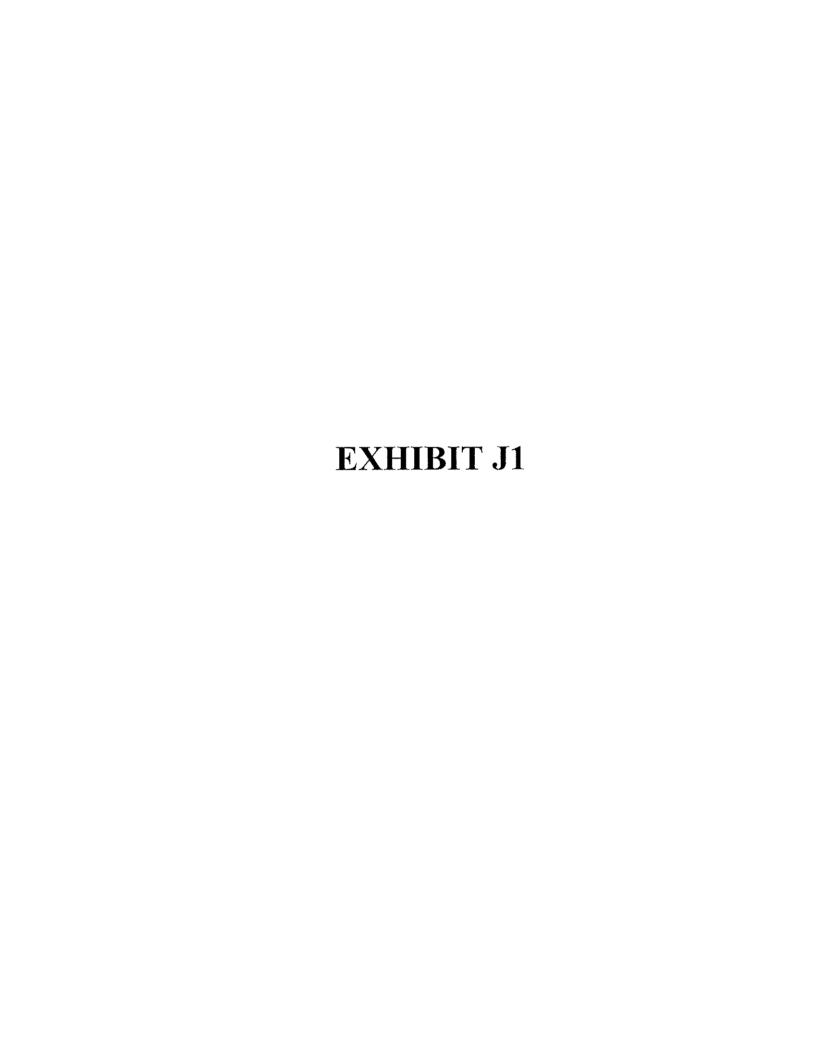
COSA:

Approved by OMB 3060-0496 Edition Date: 12/2007 Unrestricted Version SUBMISSION 01 TABLE I.A

#### TABLE I.A - OUTSIDE PLANT STATISTICS -- CABLE AND WIRE FACILITIES

Row State	Code	Km of		rial Cable		und Cable		ed Cable	Intrabldg Net			al Cable			Km of Metallic	Equipped	Equivalent	Conduit	
No. or	(b)	Aerial	Sheath	Sheath	Sheath	Sheath	Sheath	Sheath	Sheath	Sheath	Sheath	Sheath	Fiber Km		Wire in Cable	Km of Tube	# of Poles	Trench Km	Duct Km
Terr.		Wire	Km of	Km of	Km of	Km of	Km of	Km of	Km of	Km of	Km of	Km of	Equipped	Km	(t)	in Coax Cable	(v)	(w)	(x)
(a)		(c)	Metallic	Fiber	Metallic	Fiber	Metallic	Fiber	Metallic	Fiber	Metallic	Fiber	(Lit)	Deployed		(u)			
			(d)	(e)	(f)	(g)	(h)	(i)	(n)	(o)	(p)	(q)	(r)	(Lit & Dark) (s)					
110 Alabama	AL	0	41219	6065	4884	3378	57108	7873	497	0	103708	17316	161913	926818	38839202	129	415948	2285	15448
200 Florida	FL	0	37262	8936	16949	16270	98388	22104	1278	109	153877	47419	1000357	3096234	92008742	830	454029	9329	60107
210 Georgia	GA	0	57835	14381	10470	10145	105010	18578	941	113	174256	43217	1036572	2540417	69893053	1415	369263	5734	39252
280 Kentucky	KY	0	31000	6745	3365	2007	32975	3048	317	3	67657	11803	137764	676080	23874765	10	326240	1567	10808
290 Louisana	LA	0	23745	6809	6452	4125	71315	6479	1244	23	102756	17436	177986	944078	44258079	151	290047	3357	22345
350 Mississippi	MS	0	32678	4313	2100	1389	68181	12380	484	2	103443	18084	160757	888330	28002602	2	263359	800	6313
440 North Carolin	a NC	0	27010	4678	6067	4652	64433	12498	761	14	98271	21842	526375	1264903	44136583	526	239887	2605	18924
510 South Carolin	a SC	0	11164	1117	4278	3969	62851	9942	867	14	79160	15042	187347	700812	30058922	101	137275	2395	15417
530 Tennessee	TN	0	55872	11846	5964	4100	64428	5381	718	10	126982	21337	401536	1258862	48974070	266	426265	3534	20614
240 Illinois	IL	0	29329	1674	26990	17646	76485	5662	2813	185	135617	25167	389800	1966008	103368297	658	463126	13183	76463
250 Indiana	IN	0	23517	2585	8013	6065	41151	4500	1654	55	74335	13205	197859	813651	37724768	40	254388	5494	31869
330 Michigan	MI	0	37827	2675	23073	14616	125809	11737	5428	174	192137	29202	393577	2190574	105623956	39	418425	10887	63142
390 Nevada	NV	60305	3449	615	3837	1086	7171	2111	190	0	14647	3812	31805	185691	6788803	0	41639	2464	14286
460 Ohio	OH	0	50059	5138	15922	9245	43707	4595	4773	135	114461	19113	285138	1454529	67845561	60	471748	7206	41802
150 California	CA	96111	135736	6605	111471	40031	111082	3814	0	97	358289	50547	922314	4764476	276356891	1503	1244179	46794	271402
170 Connecticut	CT	0	48913	6981	9089	6233	9596	32	916	26	68514	13272	139220	1107049	42288672	85	411453	3378	19592
140 Arkansas	AR	10	6270	63	2385	1353	53490	7578	240	0	62385	8994	146300	571240	20383531	394	100229	797	4622
270 Kansas	KS	1500	6397	138	3843	2647	61203	10275	198	6	71641	13066	158466	704803	23730347	2	114692	1471	8533
360 Missouri	MO	1820	19456	507	8825	7205	81458	8183	1110	8	110849	15903	295471	1141349	46738939	2	294927	4451	25815
470 Oklahoma	OK	4094	8660	381	5320	2799	85692	8552	993	2	100665	11734	152909	754712	33197859	962	196167	1757	10188
540 Texas	TX	3331	71865	9202	36282	31140	243815	27820	4057	76	356019	68238	904767	5619165	203708512	629	883098	18008	104448
600 Wisconsin	WI	0	12961	581	7013	4773	40929	5494	1279	63	62182	10911	224597	812634	36413332	101	123781	4081	23670
2007 Summary AT&T 2007	Total	167171	772224	102035	322592	194874	1606277	198636	30758	1115	2731851	496660	8032830	34382415	1424215486	7905	7940165	151577	905060
1996 Summary AT&T 1996	Total	82977	720371	35153	293970	107110	1421212	77831	49405	980	2485759	221147	1973798	8902233	1281268914	17386	8045338	125673	759549
Difference		84194	51853	66882	28622	87764	185065	120805	-18647	135	246092	275513	6059032	25480182	142946572	-9481	-105173	25904	145511
% Increase		101.47%	7.20%	190.26%	9.74%	81.94%	13.02%	155.21%	-37.74%	13.78%	9.90%	124.58%	306.97%	286.22%	11.16%	-54.53%	-1.31%	20.61%	19.16%



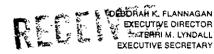




COMMISSIONERS:

STAN WISE, CHAIRMAN DAVID N. BAKER ROBERT B. (BOBBY) BAKER MAC BARBER BOB DURDEN





# Georgia Public Service Commission: 6 1997

244 WASHINGTON STREET, S.W. ATLANTA, GEORGIA 30334-5701 (404) 656-4501 OR 1 (800) 282-5813 EXECUTIVE SECRETARY G.P.S.C.

Docket No. 7061-U

#### ORDER ESTABLISHING COST-BASED RATES

In re: Review of Cost Studies, Methodologies, and Cost-Based Rates for Interconnection and Unbundling of BellSouth Telecommunications Services

Record Submitted: September 19, 1997

Date Decided: October 21, 1997

#### **APPEARANCES**

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Charles V. Gerkin

#### On behalf of American Communications Services, Inc.:

William E. Rice

#### On behalf of AT&T Communications of the Southern States, Inc.:

Jim Lamoureux & Ken McNeely Tom Lemmer, Kevin Dwyer, & Jeff Miller Laureen Seeger

#### On behalf of BellSouth Telecommunications, Inc.:

Fred McCallum, William J. Ellenberg, Doug Lackey, Bennett Ross, & Mike Twomey

> Docket No. 7061-U Page 1 of 65

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# On behalf of Georgia Public Communications Ass'n, Inc. & AT&T Wireless PCS, Inc.: Dean Fuchs

# On behalf of the Georgia Telephone Association:

John Silk

### On behalf of KMC Telecom, Inc.:

Charles A. Hudak

#### On behalf of Low Tech Designs, Inc.:

James M. Tennant, President

#### On behalf of MCI Telecommunications Corp.:

David Adelman, Mickey Henry, & Martha McMillin

#### On behalf of Media One:

L. Craig Dowdy

#### On behalf of MFS Communications Co.:

Richard M. Rindler

#### On behalf of MGC Communications, Inc.:

Peyton Hawes & Kim Dymecki

## On behalf of Sprint Communications Co., L.P.:

William R. Atkinson

## On behalf of the United States Department of the Army:

Sheryl Butler

#### On behalf of WorldCom, Inc.:

John M. Stuckey

#### BY THE COMMISSION:

The Georgia Public Service Commission ("Commission") opened this proceeding in order to review cost studies and methodologies and establish cost-based rates applicable to BellSouth Telecommunications, Inc.'s ("BellSouth") interconnection and unbundling including the unbundled network elements, nonrecurring charges, collocation, and access to poles, ducts, conduits and rights-of-way. The setting of these rates concludes a substantial leg of the journey toward full competition in the telecommunications marketplace in Georgia. The Commission's stated goals were to adopt a preferred methodology, approve a cost study or set of cost studies, and determine the resulting cost-based rates for interconnection with and the unbundling of BellSouth's telecommunications services, pursuant to the federal Telecommunications Act of 1996 ("1996 Act"), especially Sections 251 and 252, and the Georgia Telecommunications and Competition Development Act of 1995 ("Georgia Act"), O.C.G.A. § 46-5-160 et seq. The Commission's review herein will enable the Commission to meet its responsibilities under both Acts.

In summary, the Commission has adopted the use of BellSouth's cost studies with specific adjustments. These adjustments include a lower cost of capital, lower depreciation rates, slightly higher fill factors, a corrected loop sample, and moving certain shared costs from nonrecurring charges to recurring rates. The adjustments result in a 2-wire analog unbundled loop recurring (monthly) rate of \$16.51. The nonrecurring charge associated with the 2-wire analog loop is \$42.54. The Commission does not adopt BellSouth's proposed Residual Recovery Requirement. The Commission also determines that all features associated with the switch should be included with the unbundled switch port element.

As to collocation, the Commission adopts charges for the space preparation portion of the amounts charged to CLECs that are specified at \$100 per square foot, with a minimum 100-square foot space that a CLEC may order. Additional space may be ordered in 50-square foot increments. All other rates contained in the BellSouth "Collocation Handbook" are adopted. However, the CLEC will be allowed to elect wire mesh cage construction as an alternative to gypsum (plywood), with no change in the cost.

The remaining findings, conclusions and adjustments are detailed in this Order. These include adopting the FCC formula for computing pole rental (currently at a rate of \$4.20); revising the pricing structure for OSS electronic interface cost recovery to remove per-order charges; remaining with geographically averaged rates at this time; and reaffirming the Commission's previous decision in the arbitration proceedings that recombination of the loop and port elements to replicate BellSouth retail services shall be priced and treated as resale under the federal Telecommunications Act of 1996 ("1996 Act").

As discussed later in this Order, the Commission did not adopt a separate disconnection charge of \$11.00 that would have been payable if and when the CLEC asks for disconnection of the loop.

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# I. INTRODUCTION

# A. Introductory Summary

The Commission stated in its initial Procedural and Scheduling Order that the Commission sought to determine appropriate methodologies and cost studies, and the resulting cost-based rate

#### Discussion

- :-

The Commission agrees that approving a specific price of \$45 per square foot for the construction of space enclosures, but allowing an Individual Case Basis ("ICB") for space preparation would be an obstacle to competition because it introduces unnecessary uncertainty into the process of obtaining physical collocation. This represents a significant economic barrier to physical collocation, and ultimately facilities-based competition. Both the Georgia Act and the 1996 Act indicate strong legislative goals of fostering greater competition, especially facilities-based competition. The Commission agrees that a specific, albeit reasonable charge should be adopted for space preparation to encourage physical collocation.

The Commission notes BellSouth's argument that the cost-based pricing rules of Section 252(d) do not apply to collocation. However, Section 251(c)(6) provides that collocation be provided at rates, terms, and conditions that are just, reasonable, and nondiscriminatory. Allowing collocation rates that are reasonably based upon cost will be consistent with this statutory mandate.

The Commission has reviewed the Staff's approach to developing a reasonable, per-square foot space preparation charge, and finds it just, reasonable, and nondiscriminatory. The Commission concludes that \$100 per square foot is a reasonable specific charge for space preparation, which also comports with BellSouth's \$45 per square foot charge for space enclosure construction. The \$100 per square foot space preparation charge must be correlated to the actual enclosed collocation space. When a CLEC submits an application for physical collocation, the initial minimum amount of space should be 100 square feet, and extra space should be calculated in 50-square foot increments.

A collocating CLEC shall be permitted to have a wire cage, at the CLEC's option. Therefore a CLEC should not be limited to the gypsum (plywood) alternative, although the same rates should apply to either the wire cage or gypsum (plywood).

#### D. Rates for Access to Poles, Ducts, Conduits, and Rights-of-Way

Most of the parties focused more attention on other aspects of this proceeding than on the rates for access to poles, ducts, conduits, and rights-of-way. However, they generally recognized that the FCC has established formulas for computing such rates in an appropriate manner. The FCC rate for pole rental is currently \$4.20 per year. BellSouth submitted information on its computations supporting a higher rate (up to approximately \$20), but indicated that it would not seek approval for such a higher rate at this time. The Staff recommended that the Commission adopt the current rate according to the FCC formula, which produces a pole rental rate of \$4.20.

The Cable Television Association of Georgia ("CTAG") criticized Bell South's proposed rates on the basis that they advance two inherently contradictory positions regarding pole attachments and other rights-of-way. On the one hand, stated CTAG, Bell South proposed that rates currently in effect in numerous license agreements and interconnection agreements be used as permanent rates. (CTAG

Brief at 1, citing BST witness Scheye Direct at 18, Tr. 95.) However, BellSouth also proposed that, pending completion of the FCC rulemaking on pole attachments, 21 the Commission may designate new rates and that this potential change in rates could be defined in the Commission's order. (Scheye Direct at 19, Tr. 96.) BellSouth's cost study calculated a recurring annual cost of \$20.46 per foot for access to poles, \$0.56 per foot for access to conduit, and \$0.44 per foot for access to inner duct. The CTAG pointed out that BellSouth's proposed cost calculations suggest an increase of 387 percent over BellSouth's current tariffed rates for access to poles at \$4.20 per foot per year, according to the FCC's formula. (CTAG Brief at 2.) The CTAG cited the testimony of Ms. Kravtin who calculated two different sets of cost results to compare with the BellSouth analysis, both of which resulted in dramatically lower cost calculations. (CTAG Brief at 7-9, citing Kravtin Testimony at 22-29, Tr. 2247-2254.)

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According to the CTAG, BellSouth's cost study contained several errors in input assumptions underlying the calculation of usable and non-usable space on the pole. The CTAG contended that there is no basis in support of these key input assumptions. Moreover, the CTAG argued that BellSouth's attribution of unusable space directly conflicts with Section 224(e)(2)(3) of the 1996 Act, which provides that "a utility shall apportion the cost of providing space on a pole, duct, conduit, or right-of-way other than the usable space among entities so that such apportionment equals two-thirds of the costs of providing space other than the usable space that would be allocated to such entity under an equal apportionment of such costs among all attaching entities." The CTAG stated that BellSouth's cost study improperly apportioned 100 percent of the costs of unusable space among attaching entities, and furthermore would revise the costs prior to the FCC's planned schedule. The BellSouth formula also differs from the FCC's proposed pole attachment formula with respect to the 40 inches of safety space required under the National Electric Safety code ("NESC Clearance") as unusable space. (CTAG Brief at 4-7.)

The CTAG urged the Commission to continue to rely on the rates and terms established according to the FCC formula, rather than adopt the rates suggested by the BellSouth cost study. This formula has stood the test of time, the CTAG argued, conforms with the mandates of the 1996 Act, and promotes competition, as will any successor FCC formula that becomes applicable. (CTAG Brief at 10-11.) The FCC's current formula in setting the maximum rate for pole attachments multiplies the net (investment) cost of a bare pole by the percentage of usable space that an attachment occupies on an average pole (i.e., the ratio of space occupied by the attachment to total usable space on the pole). Total usable space on the pole is defined as the space on the utility pole above the minimum grade level that is usable for the attachment of lines, cables, and related equipment. The FCC has developed over the years a number of presumptions used in the formula's calculation, including the ratio of space occupied by the attachment to total usable space, which is

Mr. Scheye's direct testimony (at 19) referenced the FCC's Notice of Proposed Rulemaking (NPRM) issued March 14, 1997 (CS Docket 97-98); Tr. 96. The FCC subsequently issued a NPRM on August 12, 1997 in CS Docket 97-151 regarding pole attachment matters incorporated by reference the comments filed in response to the NPRM cited by Mr. Scheye.

#### WHEREFORE THE COMMISSION ORDERS that:

. ...

- A. The cost-based rates determined by the Commission in the preceding sections of this Order, and set forth in the Price Schedule in Appendix A hereto, are established as the rates for BellSouth's interconnection, collocation, access to poles, ducts, conduits, and rights-of-way, and unbundled network elements. BellSouth shall submit such compliance filings as are necessary to reflect and implement the rates established by this Order.
- B. Following its implementation of long-term electronic interfaces for OSS functions that were scheduled for the end of December 1997, BellSouth shall submit a detailed report of its electronic interface costs for the Commission's review.
- C. All statements of fact, law, and regulatory policy contained within the preceding sections of this Order are hereby adopted as findings of fact, conclusions of law, and conclusions of regulatory policy of this Commission.
- D. A motion for reconsideration, rehearing or oral argument or any other motion shall not stay the effective date of this Order, unless otherwise ordered by the Commission.
- E. Jurisdiction over these matters is expressly retained for the purpose of entering such further Order or Orders as this Commission may deem just and proper.

The above by action of the Commission in Administrative Session on the 21st day of October.

1997.

Terri M. Lyndall

Executive Secretary

Stan Wise

Chairman

Date

Date

